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ON TWO PERENNIAL CAESPITOSE LEPIDIUMS OF WESTERN NORTH AMERICA

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Among the known North American species of *Lepidium, L. nanum* S. Wats. stands out as strikingly different in habit from all others. It is a low, matted plant with many caudex branches each terminated by a dense rosulate cluster of tiny leaves. The species has a well-developed taproot system that often penetrates the soil to depths of a foot or more. It grows at relatively low elevations in northern Nevada. As Hitchcock (1936) remarked, plants of this species are "more suggestive of *Draba* than of *Lepidium.*" In the past, speculation as to the genetic relationships of *L. nanum* inevitably lead to a comparison of it with species of similar habit of the high Andes of South America. For example, Thellung (1906) expressed the opinion that the Andean *L. Meyenii* Walp. was probably a relative of *L. nanum.*

As long as *L. nanum* remained the only species of its type known from North America, it was justifiable to try to link it up with such remotely situated species as those of the South American continent. In fact, no obvious alternative existed because there has been no basis for connecting *L. nanum* with any other North American species of the genus. However, the recent discovery of a new species from Idaho[1] has supplied a probable connecting link between *L. nanum* and other perennial North American species. The new species is caespitose and possesses a very thick taproot (pl. 22, fig. 1). It stands in an intermediate position morphologically between *L. nanum* and such other

[1] Professor Ray J. Davis discovered fruiting material of the new species in June, 1946, returning to the same location in May, 1947, for flowering specimens.

Explanation of Figures. Plate 22.

Plate 22. Lepidium Davisii. Fig. 1, a plant from the type sheet. It is 16 cm. wide. Fig. 2, enlarged infructescence. The siliques are 3–3.5 mm. long.

PLATE 22. LEPIDIUM DAVISII.

perennial species of *Lepidium* as *L. montanum*. Therefore, it is now plausible to suggest that *L. nanum* may be related to other North American species of *Lepidium*. Formerly such a hypothesis would have seemed completely untenable. It is the principal purpose of the present paper to present a description of the new plant.

Lepidium Davisii sp. nov. Herba perennis caespitosa multicaulis; caudicibus ramosis, ramis crassis; caulibus erectis simplicibus vel rare ramosis 4–8 cm. altis pubescentibus; foliis sessilibus integris spathulatis sparse pubescentibus 1–2.5 cm. longis, 2–5 mm. latis; inflorecentiis subcorymbosis; sepalis oblongis ca. 1.5 mm. longis, ca. 1 mm. latis; petalis albis spathulatis 2–3 mm. longis; pedicellis pubescentibus teretibus 3–4 mm. longis; siliquis ovatis glabris vel sparse pubescentibus 3–3.5 mm. longis; stylis ca. 0.5 mm. longis; cotyledonibus accumbentibus.

Caespitose deep-rooted perennial forming clumps; roots thick and fleshy, 0.5–2 cm. across, expanded at summit and divided into numerous caudex branches; caudex corymbose, the apex of the branches partially invested in old leaf-bases; stems slender, numerous, each terminated by an inflorescence, simple or rarely branched, leafy, 4–8 cm. high, densely pubescent with minute whitish simple trichomes; leaves sessile, basal and cauline similar, spatulate, obtuse, greenish, sparsely pubescent, much-exceeding the internodes, 1–2.5 cm. long, 2–5 mm. wide; inflorescence subcorymbose, slightly elongated; sepals broadly oblong, not persistent, greenish with a broad hyaline margin, ca. 1.5 mm. long and 1 mm. wide, glabrous to very sparsely pubescent near the base; petals white, spatulate, 2–3 mm. long, ca. 1 mm. wide above; paired stamens only slightly longer than single stamens; infructescence subcorymbose; pedicels divaricate, pubescent, terete, 3–4 mm. long; siliques crowded, ovate (pl. 22, fig. 2), glabrous to sparsely pubescent, slightly winged above, flattened contrary to replum, slightly notched at apex, 3–3.5 mm. long, 2–2.5 mm. wide; styles ca. 0.5 mm. long; seeds wingless, one in each locule; cotyledons accumbent.

Type in the Dudley Herbarium of Stanford University, collected June 27, 1946, in a dried-up pond of the lava plain, ½ mile north of the Snake River Canyon, about 14 miles south of Mountain Home, Elmore County, Idaho, *R. J. Davis 4670*. A second collection from the same station was taken May 9, 1947, *R. J. Davis 4745* (DS).

The siliques of *L. Davisii* are similar in shape to those of *L. nanum*. The seeds are of similar size and shape, and the cotyledons are accumbent in both species. As pointed out above, the caespitose habit and thick perennial root further suggest a possible relationship between these species. These and many other kinds of plants of similar growth-habit are found in arid areas at relatively low elevations in the intercordilleran region

of western North America. Such plants are often mistakenly assumed to be part of a high mountain arctic-alpine flora. Thellung (1906) made such a mistake when he referred to *L. nanum* as an alpine plant.

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REVIEW

The Genus Crepis. Part I. The Taxonomy, Phylogeny, Distribution, and Evolution of Crepis. Part II. Systematic Treatment. By Ernest Brown Babcock. University of California Publications in Botany, vol. 21, pp. xii + 1–198, frontispiece, plate 1, figs. 1–11, tables 1–12; vol. 22, pp. x + 199–1031, plates 2–36, figs. 12–305, tables 13–19. 1947.

Hieracium excepted, *Crepis* is the largest genus of the tribe Cichorieae, family Compositae. Its one hundred and ninety-six species are distributed widely over much of Eurasia, Africa, and western North America, with their greatest concentration in the Mediterranean region. The cytology, genetics, cytogenetics, evolution, and systematics of these species have been subjected to lifelong study by Professor Babcock with the assistance of many co-workers. The results of these studies are effectively summarized in the present outstanding contribution. Space does not allow, in a short review, even mention of more than a few of the important and fundamental discoveries. Those who desire to know more will have to consult the original source which will surely become one of the classics of systematic botany.

Professor Babcock is one of the pioneers of the modern idea that systematics should correlate and integrate all evidence pertinent to the interrelationships of organisms, regardless of its source, and the present study fully substantiates that thesis. The primary sources of evidence are the classic criteria of comparative morphology and geographical distribution, yet these in themselves may not be always reliable, and the instances in which evidence from comparative cytology, genetics, cytogenetics, or geology has proved critical are legion. Once all of the facts are assembled, the evidence from each of these sources strengthens that from each other, and as a whole points to a definitive and unequivocal conclusion. On this broad basis of fact, gleaned from many diverse approaches, though still incomplete in places, Professor Babcock's conclusions rest, and it probably is no overstatement